

SEQUENCE LISTING

<110> JENTSCH, Thomas

<120> NOVEL POTASSIUM CHANNELS AND GENES ENCODING THESE POTASSIUM CHANNELS

<130> 2815-0236P

<140> NEW

<141> 2003-09-11

<160> 10

<170> PatentIn version 3.0

<210> 1

<211> 3137

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

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gcc gcc agg	ggc gac ggc	ctg cta ctg	ctg ggc acc	cgc gcg gcc	acg	96
Ala Ala Arg	Gly Asp Gly	Leu Leu Leu	Leu Gly Thr	Arg Ala Ala	Thr	
20	25	30				

ctc ggt ggc	ggc ggc ggt	ggc ctg agg	gag agc cgc	cgg ggc aag	cag	144
Leu Gly Gly	Gly Gly Gly	Gly Leu Arg	Glu Ser Arg	Arg Gly Lys	Gln	
35	40	45				

ggg gcc cgg	atg agc ctg	ctg ggg aag	ccg ctc tct	tac acg agt	agc	192
Gly Ala Arg	Met Ser Leu	Leu Gly Lys	Pro Leu Ser	Tyr Thr Ser	Ser	
50	55	60				

cag agc tgc	cgg cgc aac	gtc aag tac	cgg cgg gtg	cag aac tac	ctg	240
Gln Ser Cys	Arg Arg Asn	Val Lys Tyr	Arg Arg Val	Gln Asn Tyr	Leu	
65	70	75	80			

tac aac gtg	ctg gag aga	ccc cgc ggc	tgg gcg ttc	atc tac cac	gct	288
Tyr Asn Val	Leu Glu Arg	Pro Arg Gly	Trp Ala Phe	Ile Tyr His	Ala	
85	90	95				

ttc gtt ttt	ctc ctt gtc	ttt ggt tgc	ttg att ttg	tca gtg ttt	tct	336
Phe Val Phe	Leu Leu Val	Phe Gly Cys	Leu Ile Leu	Ser Val Phe	Ser	
100	105	110				

acc atc cct	gag cac aca	aaa ttg gcc	tca agt tgc	ctc ttg atc	ctg	384
Thr Ile Pro	Glu His Thr	Lys Leu Ala	Ser Ser Cys	Leu Leu Ile	Leu	
115	120	125				

gag ttc gtg atg att gtc gtc ttt ggt ttg gag ttc atc att cga atc	432
Glu Phe Val Met Ile Val Val Phe Gly Leu Glu Phe Ile Ile Arg Ile	
130 135 140	
tgg tct gcg ggt tgc tgt tgt cga tat aga gga tgg caa gga aga ctg	480
Trp Ser Ala Gly Cys Cys Cys Arg Tyr Arg Gly Trp Gln Gly Arg Leu	
145 150 155 160	
agg ttt gct cga aag ccc ttc tgt gtt ata gat acc att gtt ctt atc	528
Arg Phe Ala Arg Lys Pro Phe Cys Val Ile Asp Thr Ile Val Leu Ile	
165 170 175	
gct tca ata gca gtt gtt tct gca aaa act cag ggt aat att ttt gcc	576
Ala Ser Ile Ala Val Val Ser Ala Lys Thr Gln Gly Asn Ile Phe Ala	
180 185 190	
acg tct gca ctc aga agt ctc cgt ttc cta cag atc ctc cgc atg gtg	624
Thr Ser Ala Leu Arg Ser Leu Arg Phe Leu Gln Ile Leu Arg Met Val	
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cgc atg gac cga agg gga ggc act tgg aaa tta ctg ggt tca gtg gtt	672
Arg Met Asp Arg Arg Gly Gly Thr Trp Lys Leu Leu Gly Ser Val Val	
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tat gct cac agc aag gaa tta atc aca gct tgg tac ata gga ttt ttg	720
Tyr Ala His Ser Lys Glu Leu Ile Thr Ala Trp Tyr Ile Gly Phe Leu	
225 230 235 240	
gtt ctt att ttt tct tct ttc ctt gtc tat ctg gtg gaa aag gat gcc	768
Val Leu Ile Phe Ser Ser Phe Leu Val Tyr Leu Val Glu Lys Asp Ala	
245 250 255	
aat aaa gag ttt tct aca tat gca gat gct ctc tgg tgg ggc aca att	816
Asn Lys Glu Phe Ser Thr Tyr Ala Asp Ala Leu Trp Trp Gly Thr Ile	
260 265 270	
aca ttg aca act att ggc tat gga gac aaa act ccc cta act tgg ctg	864
Thr Leu Thr Thr Ile Gly Tyr Gly Asp Lys Thr Pro Leu Thr Trp Leu	
275 280 285	
gga aga ttg ctt tct gca ggc ttt gca ctc ctt ggc att tct ttc ttt	912
Gly Arg Leu Leu Ser Ala Gly Phe Ala Leu Leu Gly Ile Ser Phe Phe	
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gca ctt cct gcc ggc att ctt ggc tca ggt ttt gca tta aaa gta caa	960
Ala Leu Pro Ala Gly Ile Leu Gly Ser Gly Phe Ala Leu Lys Val Gln	
305 310 315 320	
gaa caa cac cgc cag aaa cac ttt gag aaa aga agg aac cca gct gcc	1008
Glu Gln His Arg Gln Lys His Phe Glu Lys Arg Arg Asn Pro Ala Ala	
325 330 335	
aac ctc att cag tgt gtt tgg cgt agt tac gca gct gat gag aaa tct	1056
Asn Leu Ile Gln Cys Val Trp Arg Ser Tyr Ala Ala Asp Glu Lys Ser	
340 345 350	
gtt tcc att gca acc tgg aag cca cac ttg aag gcc ttg cac acc tgc	1104

Val	Ser	Ile	Ala	Thr	Trp	Lys	Pro	His	Leu	Lys	Ala	Leu	His	Thr	Cys		
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Ser	Pro	Thr	Lys	Lys	Glu	Gln	Gly	Glu	Ala	Ser	Ser	Ser	Gln	Lys	Leu		
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agt	ttt	aag	gag	cga	gtg	cgc	atg	gct	agc	ccc	agg	ggc	cag	agt	att	1200	
Ser	Phe	Lys	Glu	Arg	Val	Arg	Met	Ala	Ser	Pro	Arg	Gly	Gln	Ser	Ile		
	385				390					395					400		
aag	agc	cga	caa	gcc	tca	gta	ggt	gac	agg	agg	tcc	cca	agc	acc	gac	1248	
Lys	Ser	Arg	Gln	Ala	Ser	Val	Gly	Asp	Arg	Arg	Ser	Pro	Ser	Thr	Asp		
			405					410						415			
atc	aca	gcc	gag	ggc	agt	ccc	acc	aaa	gtg	cag	aag	agc	tgg	agc	ttc	1296	
Ile	Thr	Ala	Glu	Gly	Ser	Pro	Thr	Lys	Val	Gln	Lys	Ser	Trp	Ser	Phe		
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aac	gac	cga	acc	cgc	ttc	cgg	ccc	tcg	ctg	cgc	ctc	aaa	agt	tct	cag	1344	
Asn	Asp	Arg	Thr	Arg	Phe	Arg	Pro	Ser	Leu	Arg	Leu	Lys	Ser	Ser	Gln		
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cca	aaa	cca	gtg	ata	gat	gct	gac	aca	gcc	ctt	ggc	act	gat	gat	gta	1392	
Pro	Lys	Pro	Val	Ile	Asp	Ala	Asp	Thr	Ala	Leu	Gly	Thr	Asp	Asp	Val		
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tat	gat	gaa	aaa	gga	tgc	cag	tgt	gat	gta	tca	gtg	gaa	gac	ctc	acc	1440	
Tyr	Asp	Glu	Lys	Gly	Cys	Gln	Cys	Asp	Val	Ser	Val	Glu	Asp	Leu	Thr		
	465				470					475					480		
cca	cca	ctt	aaa	act	gtc	att	cga	gct	atc	aga	att	atg	aaa	ttt	cat	1488	
Pro	Pro	Leu	Lys	Thr	Val	Ile	Arg	Ala	Ile	Arg	Ile	Met	Lys	Phe	His		
			485					490						495			
gtt	gca	aaa	cgg	aag	ttt	aag	gaa	aca	tta	cgt	cca	tat	gat	gta	aaa	1536	
Val	Ala	Lys	Arg	Lys	Phe	Lys	Glu	Thr	Leu	Arg	Pro	Tyr	Asp	Val	Lys		
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gat	gtc	att	gaa	caa	tat	tct	gct	ggt	cat	ctg	gac	atg	ttg	tgt	aga	1584	
Asp	Val	Ile	Glu	Gln	Tyr	Ser	Ala	Gly	His	Leu	Asp	Met	Leu	Cys	Arg		
		515					520					525					
att	aaa	agc	ctt	caa	aca	cgt	gtt	gat	caa	att	ctt	gga	aaa	ggg	caa	1632	
Ile	Lys	Ser	Leu	Gln	Thr	Arg	Val	Asp	Gln	Ile	Leu	Gly	Lys	Gly	Gln		
	530					535					540						
atc	aca	tca	gat	aag	aag	agc	cga	gag	aaa	ata	aca	gca	gaa	cat	gag	1680	
Ile	Thr	Ser	Asp	Lys	Lys	Ser	Arg	Glu	Lys	Ile	Thr	Ala	Glu	His	Glu		
	545				550					555					560		
acc	aca	gac	gat	ctc	agt	atg	ctc	ggt	cgg	gtg	gtc	aag	gtt	gaa	aaa	1728	
Thr	Thr	Asp	Asp	Leu	Ser	Met	Leu	Gly	Arg	Val	Val	Lys	Val	Glu	Lys		
			565					570					575				
cag	gta	cag	tcc	ata	gaa	tcc	aag	ctg	gac	tgc	cta	cta	gac	atc	tat	1776	
Gln	Val	Gln	Ser	Ile	Glu	Ser	Lys	Leu	Asp	Cys	Leu	Leu	Asp	Ile	Tyr		

	580	585	590	
.	caa cag gtc ctt cgg aaa ggc tct gcc tca gcc ctc gct ttg gct tca Gln Gln Val Leu Arg Lys Gly Ser Ala Ser Ala Leu Ala Leu Ala Ser 595 600 605	1824		
.	ttc cag atc cca cct ttt gaa tgt gaa cag aca tct gac tat caa agc Phe Gln Ile Pro Pro Phe Glu Cys Glu Gln Thr Ser Asp Tyr Gln Ser 610 615 620	1872		
	cct gtg gat agc aaa gat ctt tcg ggt tcc gca caa aac agt ggc tgc Pro Val Asp Ser Lys Asp Leu Ser Gly Ser Ala Gln Asn Ser Gly Cys 625 630 635 640	1920		
	tta tcc aga tca act agt gcc aac atc tcg aga ggc ctg cag ttc att Leu Ser Arg Ser Thr Ser Ala Asn Ile Ser Arg Gly Leu Gln Phe Ile 645 650 655	1968		
	ctg acg cca aat gag ttc agt gcc cag act ttc tac gcg ctt agc cct Leu Thr Pro Asn Glu Phe Ser Ala Gln Thr Phe Tyr Ala Leu Ser Pro 660 665 670	2016		
	act atg cac agt caa gca aca cag gtg cca att agt caa agc gat ggc Thr Met His Ser Gln Ala Thr Gln Val Pro Ile Ser Gln Ser Asp Gly 675 680 685	2064		
	tca gca gtg gca gcc acc aac acc att gca aac caa ata aat acg gca Ser Ala Val Ala Ala Thr Asn Thr Ile Ala Asn Gln Ile Asn Thr Ala 690 695 700	2112		
	ccc aag cca gca gcc cca aca act tta cag atc cca cct cct ctc cca Pro Lys Pro Ala Ala Pro Thr Thr Leu Gln Ile Pro Pro Pro Leu Pro 705 710 715 720	2160		
	gcc atc aag cat ctg ccc agg cca gaa act ctg cac cct aac cct gca Ala Ile Lys His Leu Pro Arg Pro Glu Thr Leu His Pro Asn Pro Ala 725 730 735	2208		
	ggc tta cag gaa agc att tct gac gtc acc acc tgc ctt gtt gcc tcc Gly Leu Gln Glu Ser Ile Ser Asp Val Thr Thr Cys Leu Val Ala Ser 740 745 750	2256		
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	atg agg aaa agc ttt gac atg gga gga gaa act ctg ttg tct gtc tgt Met Arg Lys Ser Phe Asp Met Gly Gly Glu Thr Leu Leu Ser Val Cys 770 775 780	2352		
	ccc atg gtg ccg aag gac ttg ggc aaa tct ttg tct gtg caa aac ctg Pro Met Val Pro Lys Asp Leu Gly Lys Ser Leu Ser Val Gln Asn Leu 785 790 795 800	2400		
	atc agg tcg acc gag gaa ctg aat ata caa ctt tca ggg agt gag tca Ile Arg Ser Thr Glu Glu Leu Asn Ile Gln Leu Ser Gly Ser Glu Ser 805 810 815	2448		

agt ggc tcc aga ggc agc caa gat ttt tac ccc aaa tgg agg gaa tcc 2496
 Ser Gly Ser Arg Gly Ser Gln Asp Phe Tyr Pro Lys Trp Arg Glu Ser
 820 825 830

aaa ttg ttt ata act gat gaa gag gtg ggt ccc gaa gag aca gag aca 2544
 Lys Leu Phe Ile Thr Asp Glu Glu Val Gly Pro Glu Glu Thr Glu Thr
 835 840 845

gac act ttt gat gcc gca ccg cag cct gcc agg gaa gct gcc ttt gca 2592
 Asp Thr Phe Asp Ala Ala Pro Gln Pro Ala Arg Glu Ala Ala Phe Ala
 850 855 860

tca gac tct cta agg act gga agg tca cga tca tct cag agc att tgt 2640
 Ser Asp Ser Leu Arg Thr Gly Arg Ser Arg Ser Ser Gln Ser Ile Cys
 865 870 875 880

aag gca gga gaa agt aca gat gcc ctc agc ttg cct cat gtc aaa ctg 2688
 Lys Ala Gly Glu Ser Thr Asp Ala Leu Ser Leu Pro His Val Lys Leu
 885 890 895

aaa taagttcttc attttctttc caggcatagc agttcttttag ccatacatat 2741
 Lys

cattgcatga actatttcga aagcccttct aaaaagttga aattgcaaga atcggaaga 2801

acatgaaagg cagtttataa gcccgttacc ttttaattgc atgaaaatgc atgtttaggg 2861

atggctaaaa ttccaagggtg catcgacatt aaccactca tttagtaatg taccttgagt 2921

taaaaagcct gagaaaccaa acacagctaa tgctatgggg tgtatgaata tgtcaagttt 2981

aggtcattta gaagatttga cactgtattt tgaaattatg ggagtaaaca cttcaaatt 3041

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<212> PRT

<213> Homo sapiens

<400> 2

Met Lys Asp Val Glu Ser Gly Arg Gly Arg Val Leu Leu Asn Ser Ala
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Leu Gly Gly Gly Gly Gly Gly Leu Arg Glu Ser Arg Arg Gly Lys Gln
 35 40 45

Gly Ala Arg Met Ser Leu Leu Gly Lys Pro Leu Ser Tyr Thr Ser Ser
 50 55 60

Gln Ser Cys Arg Arg Asn Val Lys Tyr Arg Arg Val Gln Asn Tyr Leu
 65 70 75 80
 . Tyr Asn Val Leu Glu Arg Pro Arg Gly Trp Ala Phe Ile Tyr His Ala
 85 90 95
 . Phe Val Phe Leu Leu Val Phe Gly Cys Leu Ile Leu Ser Val Phe Ser
 100 105 110
 Thr Ile Pro Glu His Thr Lys Leu Ala Ser Ser Cys Leu Leu Ile Leu
 115 120 125
 Glu Phe Val Met Ile Val Val Phe Gly Leu Glu Phe Ile Ile Arg Ile
 130 135 140
 Trp Ser Ala Gly Cys Cys Cys Arg Tyr Arg Gly Trp Gln Gly Arg Leu
 145 150 155 160
 Arg Phe Ala Arg Lys Pro Phe Cys Val Ile Asp Thr Ile Val Leu Ile
 165 170 175
 Ala Ser Ile Ala Val Val Ser Ala Lys Thr Gln Gly Asn Ile Phe Ala
 180 185 190
 Thr Ser Ala Leu Arg Ser Leu Arg Phe Leu Gln Ile Leu Arg Met Val
 195 200 205
 Arg Met Asp Arg Arg Gly Gly Thr Trp Lys Leu Leu Gly Ser Val Val
 210 215 220
 Tyr Ala His Ser Lys Glu Leu Ile Thr Ala Trp Tyr Ile Gly Phe Leu
 225 230 235 240
 Val Leu Ile Phe Ser Ser Phe Leu Val Tyr Leu Val Glu Lys Asp Ala
 245 250 255
 Asn Lys Glu Phe Ser Thr Tyr Ala Asp Ala Leu Trp Trp Gly Thr Ile
 260 265 270
 Thr Leu Thr Thr Ile Gly Tyr Gly Asp Lys Thr Pro Leu Thr Trp Leu
 275 280 285
 Gly Arg Leu Leu Ser Ala Gly Phe Ala Leu Leu Gly Ile Ser Phe Phe
 290 295 300
 Ala Leu Pro Ala Gly Ile Leu Gly Ser Gly Phe Ala Leu Lys Val Gln
 305 310 315 320
 Glu Gln His Arg Gln Lys His Phe Glu Lys Arg Arg Asn Pro Ala Ala
 325 330 335
 Asn Leu Ile Gln Cys Val Trp Arg Ser Tyr Ala Ala Asp Glu Lys Ser
 340 345 350
 Val Ser Ile Ala Thr Trp Lys Pro His Leu Lys Ala Leu His Thr Cys
 355 360 365

Ser	Pro	Thr	Lys	Lys	Glu	Gln	Gly	Glu	Ala	Ser	Ser	Ser	Gln	Lys	Leu	
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Ser	Phe	Lys	Glu	Arg	Val	Arg	Met	Ala	Ser	Pro	Arg	Gly	Gln	Ser	Ile	
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Lys	Ser	Arg	Gln	Ala	Ser	Val	Gly	Asp	Arg	Arg	Ser	Pro	Ser	Thr	Asp	
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Ile	Thr	Ala	Glu	Gly	Ser	Pro	Thr	Lys	Val	Gln	Lys	Ser	Trp	Ser	Phe	
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Asn	Asp	Arg	Thr	Arg	Phe	Arg	Pro	Ser	Leu	Arg	Leu	Lys	Ser	Ser	Gln	
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Tyr	Asp	Glu	Lys	Gly	Cys	Gln	Cys	Asp	Val	Ser	Val	Glu	Asp	Leu	Thr	
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Pro	Pro	Leu	Lys	Thr	Val	Ile	Arg	Ala	Ile	Arg	Ile	Met	Lys	Phe	His	
				485					490					495		
Val	Ala	Lys	Arg	Lys	Phe	Lys	Glu	Thr	Leu	Arg	Pro	Tyr	Asp	Val	Lys	
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Asp	Val	Ile	Glu	Gln	Tyr	Ser	Ala	Gly	His	Leu	Asp	Met	Leu	Cys	Arg	
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Ile	Lys	Ser	Leu	Gln	Thr	Arg	Val	Asp	Gln	Ile	Leu	Gly	Lys	Gly	Gln	
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Gln	Val	Gln	Ser	Ile	Glu	Ser	Lys	Leu	Asp	Cys	Leu	Leu	Asp	Ile	Tyr	
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Gln	Gln	Val	Leu	Arg	Lys	Gly	Ser	Ala	Ser	Ala	Leu	Ala	Leu	Ala	Ser	
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Phe	Gln	Ile	Pro	Pro	Phe	Glu	Cys	Glu	Gln	Thr	Ser	Asp	Tyr	Gln	Ser	
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Pro	Val	Asp	Ser	Lys	Asp	Leu	Ser	Gly	Ser	Ala	Gln	Asn	Ser	Gly	Cys	
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Leu	Thr	Pro	Asn	Glu	Phe	Ser	Ala	Gln	Thr	Phe	Tyr	Ala	Leu	Ser	Pro	
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Thr Met His Ser Gln Ala Thr Gln Val Pro Ile Ser Gln Ser Asp Gly
 675 680 685
 Ser Ala Val Ala Ala Thr Asn Thr Ile Ala Asn Gln Ile Asn Thr Ala
 690 695 700
 Pro Lys Pro Ala Ala Pro Thr Thr Leu Gln Ile Pro Pro Pro Leu Pro
 705 710 715 720
 Ala Ile Lys His Leu Pro Arg Pro Glu Thr Leu His Pro Asn Pro Ala
 725 730 735
 Gly Leu Gln Glu Ser Ile Ser Asp Val Thr Thr Cys Leu Val Ala Ser
 740 745 750
 Lys Glu Asn Val Gln Val Ala Gln Ser Asn Leu Thr Lys Asp Arg Ser
 755 760 765
 Met Arg Lys Ser Phe Asp Met Gly Gly Glu Thr Leu Leu Ser Val Cys
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 Pro Met Val Pro Lys Asp Leu Gly Lys Ser Leu Ser Val Gln Asn Leu
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 Ile Arg Ser Thr Glu Glu Leu Asn Ile Gln Leu Ser Gly Ser Glu Ser
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 Lys Leu Phe Ile Thr Asp Glu Glu Val Gly Pro Glu Glu Thr Glu Thr
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 Ser Asp Ser Leu Arg Thr Gly Arg Ser Arg Ser Ser Gln Ser Ile Cys
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Lys

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 <212> PRT
 <213> Homo sapiens

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Lys Cys Pro Phe Ser Leu Glu Leu Ala Glu Gly Gly Pro Ala Gly Gly
 35 40 45
 . Ala Leu Tyr Ala Pro Ile Ala Pro Gly Ala Pro Gly Pro Ala Pro Pro
 50 55 60
 . Ala Ser Pro Ala Ala Pro Ala Ala Pro Pro Val Ala Ser Asp Leu Gly
 65 70 75 80
 Pro Arg Pro Pro Val Ser Leu Asp Pro Arg Val Ser Ile Tyr Ser Thr
 85 90 95
 Arg Arg Pro Val Leu Ala Arg Thr His Val Gln Gly Arg Val Tyr Asn
 100 105 110
 Phe Leu Glu Arg Pro Thr Gly Trp Lys Cys Phe Val Tyr His Phe Ala
 115 120 125
 Val Phe Leu Ile Val Leu Val Cys Leu Ile Phe Ser Val Leu Ser Thr
 130 135 140
 Ile Glu Gln Tyr Ala Ala Leu Ala Thr Gly Thr Leu Phe Trp Met Glu
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 Ile Val Leu Val Val Phe Phe Gly Thr Glu Tyr Val Val Arg Leu Trp
 165 170 175
 Ser Ala Gly Cys Arg Ser Lys Tyr Val Gly Leu Trp Gly Arg Leu Arg
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 Phe Ala Arg Lys Pro Ile Ser Ile Ile Asp Leu Ile Val Val Val Ala
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 Ser Met Val Val Leu Cys Val Gly Ser Lys Gly Gln Val Phe Ala Thr
 210 215 220
 Ser Ala Ile Arg Gly Ile Arg Phe Leu Gln Ile Leu Arg Met Leu His
 225 230 235 240
 Val Asp Arg Gln Gly Gly Thr Trp Arg Leu Leu Gly Ser Val Val Phe
 245 250 255
 Ile His Arg Gln Glu Leu Ile Thr Thr Leu Tyr Ile Gly Phe Leu Gly
 260 265 270
 Leu Ile Phe Ser Ser Tyr Phe Val Tyr Leu Ala Glu Lys Asp Ala Val
 275 280 285
 Asn Glu Ser Gly Arg Val Glu Phe Gly Ser Tyr Ala Asp Ala Leu Trp
 290 295 300
 Trp Gly Val Val Thr Val Thr Thr Ile Gly Tyr Gly Asp Lys Val Pro
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 Gln Thr Trp Val Gly Lys Thr Ile Ala Ser Cys Phe Ser Val Phe Ala
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Ile Ser Phe Phe Ala Leu Pro Ala Gly Ile Leu Gly Ser Gly Phe Ala
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 . Leu Lys Val Gln Gln Lys Gln Arg Gln Lys His Phe Asn Arg Gln Ile
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 . Pro Ala Ala Ala Ser Leu Ile Gln Thr Ala Trp Arg Cys Tyr Ala Ala
 370 375 380
 Glu Asn Pro Asp Ser Ser Thr Trp Lys Ile Tyr Ile Arg Lys Ala Pro
 385 390 395 400
 Arg Ser His Thr Leu Leu Ser Pro Ser Pro Lys Pro Lys Lys Ser Val
 405 410 415
 Val Val Lys Lys Lys Lys Phe Lys Leu Asp Lys Asp Asn Gly Val Thr
 420 425 430
 Pro Gly Glu Lys Met Leu Thr Val Pro His Ile Thr Cys Asp Pro Pro
 435 440 445
 Glu Glu Arg Arg Leu Asp His Phe Ser Val Asp Gly Tyr Asp Ser Ser
 450 455 460
 Val Arg Lys Ser Pro Thr Leu Leu Glu Val Ser Met Pro His Phe Met
 465 470 475 480
 Arg Thr Asn Ser Phe Ala Glu Asp Leu Asp Leu Glu Gly Glu Thr Leu
 485 490 495
 Leu Thr Pro Ile Thr His Ile Ser Gln Leu Arg Glu His His Arg Ala
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 Thr Ile Lys Val Ile Arg Arg Met Gln Tyr Phe Val Ala Lys Lys Lys
 515 520 525
 Phe Gln Gln Ala Arg Lys Pro Tyr Asp Val Arg Asp Val Ile Glu Gln
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 Tyr Ser Gln Gly His Leu Asn Leu Met Val Arg Ile Lys Glu Leu Gln
 545 550 555 560
 Arg Arg Leu Asp Gln Ser Ile Gly Lys Pro Ser Leu Phe Ile Ser Val
 565 570 575
 Ser Glu Lys Ser Lys Asp Arg Gly Ser Asn Thr Ile Gly Ala Arg Leu
 580 585 590
 Asn Arg Val Glu Asp Lys Val Thr Gln Leu Asp Gln Arg Leu Ala Leu
 595 600 605
 Ile Thr Asp Met Leu His Gln Leu Leu Ser Leu His Gly Gly Ser Thr
 610 615 620
 Pro Gly Ser Gly Gly Pro Pro Arg Glu Gly Gly Ala His Ile Thr Gln
 625 630 635 640

Pro Cys Gly Ser Gly Gly Ser Val Asp Pro Glu Leu Phe Leu Pro Ser
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Asn Thr Leu Pro Thr Tyr Glu Gln Leu Thr Val Pro Arg Arg Gly Pro
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Asp Glu Gly Ser
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Asp Ser Thr Arg Asp Gly Ala Leu Leu Ile Ala Gly Ser Glu Ala Pro
35 40 45

Lys Arg Gly Ser Ile Leu Ser Lys Pro Arg Ala Gly Gly Ala Gly Ala
50 55 60

Gly Lys Pro Pro Lys Arg Asn Ala Phe Tyr Arg Lys Leu Gln Asn Phe
65 70 75 80

Leu Tyr Asn Val Leu Glu Arg Pro Arg Gly Trp Ala Phe Ile Tyr His
85 90 95

Ala Tyr Val Phe Leu Leu Val Phe Ser Cys Leu Val Leu Ser Val Phe
100 105 110

Ser Thr Ile Lys Glu Tyr Glu Lys Ser Ser Glu Gly Ala Leu Tyr Ile
115 120 125

Leu Glu Ile Val Thr Ile Val Val Phe Gly Val Glu Tyr Phe Val Arg
130 135 140

Ile Trp Ala Ala Gly Cys Cys Cys Arg Tyr Arg Gly Trp Arg Gly Arg
145 150 155 160

Leu Lys Phe Ala Arg Lys Pro Phe Cys Val Ile Asp Ile Met Val Leu
165 170 175

Ile Ala Ser Ile Ala Val Leu Ala Ala Gly Ser Gln Gly Asn Val Phe
180 185 190

Ala Thr Ser Ala Leu Arg Ser Leu Arg Phe Leu Gln Ile Leu Arg Met
195 200 205

Ile Arg Met Asp Arg Arg Gly Gly Thr Trp Lys Leu Leu Gly Ser Val
210 215 220

Val Tyr Ala His Ser Lys Glu Leu Val Thr Ala Trp Tyr Ile Gly Phe
225 230 235 240
. Leu Cys Leu Ile Leu Ala Ser Phe Leu Val Tyr Leu Ala Glu Lys Gly
245 250 255
. Glu Asn Asp His Phe Asp Thr Tyr Ala Asp Ala Leu Trp Trp Gly Leu
260 265 270
Ile Thr Leu Thr Thr Ile Gly Tyr Gly Asp Lys Tyr Pro Gln Thr Trp
275 280 285
Asn Gly Arg Leu Leu Ala Ala Thr Phe Thr Leu Ile Gly Val Ser Phe
290 295 300
Phe Ala Leu Pro Ala Gly Ile Leu Gly Ser Gly Phe Ala Leu Lys Val
305 310 315 320
Gln Glu Gln His Arg Gln Lys His Phe Glu Lys Arg Arg Asn Pro Ala
325 330 335
Ala Gly Leu Ile Gln Ser Ala Trp Arg Phe Tyr Ala Thr Asn Leu Ser
340 345 350
Arg Thr Asp Leu His Ser Thr Trp Gln Tyr Tyr Glu Arg Thr Val Thr
355 360 365
Val Pro Met Tyr Arg Leu Ile Pro Pro Leu Asn Gln Leu Glu Leu Leu
370 375 380
Arg Asn Leu Lys Ser Lys Ser Gly Leu Ala Phe Arg Lys Asp Pro Pro
385 390 395 400
Pro Glu Pro Ser Pro Ser Gln Lys Val Ser Leu Lys Asp Arg Val Phe
405 410 415
Ser Ser Pro Arg Gly Val Ala Ala Lys Gly Lys Gly Ser Pro Gln Ala
420 425 430
Gln Thr Val Arg Arg Ser Pro Ser Ala Asp Gln Ser Leu Glu Asp Ser
435 440 445
Pro Ser Lys Val Pro Lys Ser Trp Ser Phe Gly Asp Arg Ser Arg Ala
450 455 460
Arg Gln Ala Phe Arg Ile Lys Gly Ala Ala Ser Arg Gln Asn Ser Glu
465 470 475 480
Glu Ala Ser Leu Pro Gly Glu Asp Ile Val Asp Asp Lys Ser Cys Pro
485 490 495
Cys Glu Phe Val Thr Glu Asp Leu Thr Pro Gly Leu Lys Val Ser Ile
500 505 510
Arg Ala Val Cys Val Met Arg Phe Leu Val Ser Lys Arg Lys Phe Lys
515 520 525

Glu Ser Leu Arg Pro Tyr Asp Val Met Asp Val Ile Glu Gln Tyr Ser
530 535 540

Ala Gly His Leu Asp Met Leu Ser Arg Ile Lys Ser Leu Gln Ser Arg
545 550 555 560

Val Asp Gln Ile Val Gly Arg Gly Pro Ala Ile Thr Asp Lys Asp Arg
565 570 575

Thr Lys Gly Pro Ala Glu Ala Glu Leu Pro Glu Asp Pro Ser Met Met
580 585 590

Gly Arg Leu Gly Lys Val Glu Lys Gln Val Leu Ser Met Glu Lys Lys
595 600 605

Leu Asp Phe Leu Val Asn Ile Tyr Met Gln Arg Met Gly Ile Pro Pro
610 615 620

Thr Glu Thr Glu Ala Tyr Phe Gly Ala Lys Glu Pro Glu Pro Ala Pro
625 630 635 640

Pro Tyr His Ser Pro Glu Asp Ser Arg Glu His Val Asp Arg His Gly
645 650 655

Cys Ile Val Lys Ile Val Arg Ser Ser Ser Thr Gly Gln Lys Asn
660 665 670

Phe Ser Ala Pro Pro Ala Ala Pro Pro Val Gln Cys Pro Pro Ser Thr
675 680 685

Ser Trp Gln Pro Gln Ser His Pro Arg Gln Gly His Gly Thr Ser Pro
690 695 700

Val Gly Asp His Gly Ser Leu Val Arg Ile Pro Pro Pro Pro Ala His
705 710 715 720

Glu Arg Ser Leu Ser Ala Tyr Gly Gly Gly Asn Arg Ala Ser Met Glu
725 730 735

Phe Leu Arg Gln Glu Asp Thr Pro Gly Cys Arg Pro Pro Glu Gly Thr
740 745 750

Leu Arg Asp Ser Asp Thr Ser Ile Ser Ile Pro Ser Val Asp His Glu
755 760 765

Glu Leu Glu Arg Ser Phe Ser Gly Phe Ser Ile Ser Gln Ser Lys Glu
770 775 780

Asn Leu Asp Ala Leu Asn Ser Cys Tyr Ala Ala Val Ala Pro Cys Ala
785 790 795 800

Lys Val Arg Pro Tyr Ile Ala Glu Gly Glu Ser Asp Thr Asp Ser Asp
805 810 815

Leu Cys Thr Pro Cys Gly Pro Pro Pro Arg Ser Ala Thr Gly Glu Gly
820 825 830

Pro Phe Gly Asp Val Gly Trp Ala Gly Pro Arg Lys
835 840

<210> 5
<211> 872
<212> PRT
<213> Homo sapiens

<400> 5
Met Gly Leu Lys Ala Arg Arg Ala Ala Gly Ala Ala Gly Gly Gly Gly
1 5 10 15
Asp Gly Gly Gly Gly Gly Gly Gly Ala Ala Asn Pro Ala Gly Gly Asp
20 25 30
Ala Ala Ala Ala Gly Asp Glu Glu Arg Lys Val Gly Leu Ala Pro Gly
35 40 45
Asp Val Glu Gln Val Thr Leu Ala Leu Gly Ala Gly Ala Asp Lys Asp
50 55 60
Gly Thr Leu Leu Leu Glu Gly Gly Gly Arg Asp Glu Gly Gln Arg Arg
65 70 75 80
Thr Pro Gln Gly Ile Gly Leu Leu Ala Lys Thr Pro Leu Ser Arg Pro
85 90 95
Val Lys Arg Asn Asn Ala Lys Tyr Arg Arg Ile Gln Thr Leu Ile Tyr
100 105 110
Asp Ala Leu Glu Arg Pro Arg Gly Trp Ala Leu Leu Tyr His Ala Leu
115 120 125
Val Phe Leu Ile Val Leu Gly Cys Leu Ile Leu Ala Val Leu Thr Thr
130 135 140
Phe Lys Glu Tyr Glu Thr Val Ser Gly Asp Trp Leu Leu Leu Leu Glu
145 150 155 160
Thr Phe Ala Ile Phe Ile Phe Gly Ala Glu Phe Ala Leu Arg Ile Trp
165 170 175
Ala Ala Gly Cys Cys Cys Arg Tyr Lys Gly Trp Arg Gly Arg Leu Lys
180 185 190
Phe Ala Arg Lys Pro Leu Cys Met Leu Asp Ile Phe Val Leu Ile Ala
195 200 205
Ser Val Pro Val Val Ala Val Gly Asn Gln Gly Asn Val Leu Ala Thr
210 215 220
Ser Leu Arg Ser Leu Arg Phe Leu Gln Ile Leu Arg Met Leu Arg Met
225 230 235 240
Asp Arg Arg Gly Gly Thr Trp Lys Leu Leu Gly Ser Ala Ile Cys Ala
245 250 255

His Ser Lys Glu Leu Ile Thr Ala Trp Tyr Ile Gly Phe Leu Thr Leu
 260 265 270
 . Ile Leu Ser Ser Phe Leu Val Tyr Leu Val Glu Lys Asp Val Pro Glu
 275 280 285
 . Val Asp Ala Gln Gly Glu Glu Met Lys Glu Glu Phe Glu Thr Tyr Ala
 290 295 300
 Asp Ala Leu Trp Trp Gly Leu Ile Thr Leu Ala Thr Ile Gly Tyr Gly
 305 310 315 320
 Asp Lys Thr Pro Lys Thr Trp Glu Gly Arg Leu Ile Ala Ala Thr Phe
 325 330 335
 Ser Leu Ile Gly Val Ser Phe Phe Ala Leu Pro Ala Gly Ile Leu Gly
 340 345 350
 Ser Gly Leu Ala Leu Lys Val Gln Glu Gln His Arg Gln Lys His Phe
 355 360 365
 Glu Lys Arg Arg Lys Pro Ala Ala Glu Leu Ile Gln Ala Ala Trp Arg
 370 375 380
 Tyr Tyr Ala Thr Asn Pro Asn Arg Ile Asp Leu Val Ala Thr Trp Arg
 385 390 395 400
 Phe Tyr Glu Ser Val Val Ser Phe Pro Phe Phe Arg Lys Glu Gln Leu
 405 410 415
 Glu Ala Ala Ser Ser Gln Lys Leu Gly Leu Leu Asp Arg Val Arg Leu
 420 425 430
 Ser Asn Pro Arg Gly Ser Asn Thr Lys Gly Lys Leu Phe Thr Pro Leu
 435 440 445
 Asn Val Asp Ala Ile Glu Glu Ser Pro Ser Lys Glu Pro Lys Pro Val
 450 455 460
 Gly Leu Asn Asn Lys Glu Arg Phe Arg Thr Ala Phe Arg Met Lys Ala
 465 470 475 480
 Tyr Ala Phe Trp Gln Ser Ser Glu Asp Ala Gly Thr Gly Asp Pro Met
 485 490 495
 Ala Glu Asp Arg Gly Tyr Gly Asn Asp Phe Pro Ile Glu Asp Met Ile
 500 505 510
 Pro Thr Leu Lys Ala Ala Ile Arg Ala Val Arg Ile Leu Gln Phe Arg
 515 520 525
 Leu Tyr Lys Lys Lys Phe Lys Glu Thr Leu Arg Pro Tyr Asp Val Lys
 530 535 540
 Asp Val Ile Glu Gln Tyr Ser Ala Gly His Leu Asp Met Leu Ser Arg
 545 550 555 560

Ile Lys Tyr Leu Gln Thr Arg Ile Asp Met Ile Phe Thr Pro Gly Pro
 565 570 575
 Pro Ser Thr Pro Lys His Lys Lys Ser Gln Lys Gly Ser Ala Phe Thr
 580 585 590
 Phe Pro Ser Gln Gln Ser Pro Arg Asn Glu Pro Tyr Val Ala Arg Pro
 595 600 605
 Ser Thr Ser Glu Ile Glu Asp Gln Ser Met Met Gly Lys Phe Val Lys
 610 615 620
 Val Glu Arg Gln Val Gln Asp Met Gly Lys Lys Leu Asp Phe Leu Val
 625 630 635 640
 Asp Met His Met Gln His Met Glu Arg Leu Gln Val Gln Val Thr Glu
 645 650 655
 Tyr Tyr Pro Thr Lys Gly Thr Ser Ser Pro Ala Glu Ala Glu Lys Lys
 660 665 670
 Glu Asp Asn Arg Tyr Ser Asp Leu Lys Thr Ile Ile Cys Asn Tyr Ser
 675 680 685
 Glu Thr Gly Pro Pro Glu Pro Pro Tyr Ser Phe His Gln Val Thr Ile
 690 695 700
 Asp Lys Val Ser Pro Tyr Gly Phe Phe Ala His Asp Pro Val Asn Leu
 705 710 715 720
 Pro Arg Gly Gly Pro Ser Ser Gly Lys Val Gln Ala Thr Pro Pro Ser
 725 730 735
 Ser Ala Thr Thr Tyr Val Glu Arg Pro Thr Val Leu Pro Ile Leu Thr
 740 745 750
 Leu Leu Asp Ser Arg Val Ser Cys His Ser Gln Ala Asp Leu Gln Gly
 755 760 765
 Pro Tyr Ser Asp Arg Ile Ser Pro Arg Gln Arg Arg Ser Ile Thr Arg
 770 775 780
 Asp Ser Asp Thr Pro Leu Ser Leu Met Ser Val Asn His Glu Glu Leu
 785 790 795 800
 Glu Arg Ser Pro Ser Gly Phe Ser Ile Ser Gln Asp Arg Asp Asp Tyr
 805 810 815
 Val Phe Gly Pro Asn Gly Gly Ser Ser Trp Met Arg Glu Lys Arg Tyr
 820 825 830
 Leu Ala Glu Gly Glu Thr Asp Thr Asp Thr Asp Pro Phe Thr Pro Ser
 835 840 845
 Gly Ser Met Pro Leu Ser Ser Thr Gly Asp Gly Ile Ser Asp Ser Val
 850 855 860

Trp Thr Pro Ser Asn Lys Pro Ile
865 870

<210> 6
<211> 695
<212> PRT
<213> Homo sapiens

<400> 6
Met Ala Glu Ala Pro Pro Arg Arg Leu Gly Leu Gly Pro Pro Pro Gly
1 5 10 15
Asp Ala Pro Arg Ala Glu Leu Val Ala Leu Thr Ala Val Gln Ser Glu
20 25 30
Gln Gly Glu Ala Gly Gly Gly Gly Ser Pro Arg Arg Leu Gly Leu Leu
35 40 45
Gly Ser Pro Leu Pro Pro Gly Ala Pro Leu Pro Gly Pro Gly Ser Gly
50 55 60
Ser Gly Ser Ala Cys Gly Gln Arg Ser Ser Ala Ala His Lys Arg Tyr
65 70 75 80
Arg Arg Leu Gln Asn Trp Val Tyr Asn Val Leu Glu Arg Pro Arg Gly
85 90 95
Trp Ala Phe Val Tyr His Val Phe Ile Phe Leu Leu Val Phe Ser Cys
100 105 110
Leu Val Leu Ser Val Leu Ser Thr Ile Gln Glu His Gln Glu Leu Ala
115 120 125
Asn Glu Cys Leu Leu Ile Leu Glu Phe Val Met Ile Val Val Phe Gly
130 135 140
Leu Glu Tyr Ile Val Arg Val Trp Ser Ala Gly Cys Cys Cys Arg Tyr
145 150 155 160
Arg Gly Trp Gln Gly Arg Phe Arg Phe Ala Arg Lys Pro Phe Cys Val
165 170 175
Ile Asp Phe Ile Val Phe Val Ala Ser Val Ala Val Ile Ala Ala Gly
180 185 190
Thr Gln Gly Asn Ile Phe Ala Thr Ser Ala Leu Arg Ser Met Arg Phe
195 200 205
Leu Gln Ile Leu Arg Met Val Arg Met Asp Arg Arg Gly Gly Thr Trp
210 215 220
Lys Leu Leu Gly Ser Val Val Tyr Ala His Ser Lys Glu Leu Ile Thr
225 230 235 240
Ala Trp Tyr Ile Gly Phe Leu Val Leu Ile Phe Ala Ser Phe Leu Val
245 250 255

Tyr Leu Ala Glu Lys Asp Ala Asn Ser Asp Phe Ser Ser Tyr Ala Asp
260 265 270
Ser Leu Trp Trp Gly Thr Ile Thr Leu Thr Thr Ile Gly Tyr Gly Asp
275 280 285
Lys Thr Pro His Thr Trp Leu Gly Arg Val Leu Ala Ala Gly Phe Ala
290 295 300
Leu Leu Gly Ile Ser Phe Phe Ala Leu Pro Ala Gly Ile Leu Gly Ser
305 310 315 320
Gly Phe Ala Leu Lys Val Gln Glu Gln His Arg Gln Lys His Phe Glu
325 330 335
Lys Arg Arg Met Pro Ala Ala Asn Leu Ile Gln Ala Ala Trp Arg Leu
340 345 350
Tyr Ser Thr Asp Met Ser Arg Ala Tyr Leu Thr Ala Thr Trp Tyr Tyr
355 360 365
Tyr Asp Ser Ile Leu Pro Ser Phe Arg Glu Leu Ala Leu Leu Phe Glu
370 375 380
His Val Gln Arg Ala Arg Asn Gly Gly Leu Arg Pro Leu Glu Val Arg
385 390 395 400
Arg Ala Pro Val Pro Asp Gly Ala Pro Ser Arg Tyr Pro Pro Val Ala
405 410 415
Thr Cys His Arg Pro Gly Ser Thr Ser Phe Cys Pro Gly Glu Ser Ser
420 425 430
Arg Met Gly Ile Lys Asp Arg Ile Arg Met Gly Ser Ser Gln Arg Arg
435 440 445
Thr Gly Pro Ser Lys Gln Gln Leu Ala Pro Pro Thr Met Pro Thr Ser
450 455 460
Pro Ser Ser Glu Gln Val Gly Glu Ala Thr Ser Pro Thr Lys Val Gln
465 470 475 480
Lys Ser Trp Ser Phe Asn Asp Arg Thr Arg Phe Arg Ala Ser Leu Arg
485 490 495
Leu Lys Pro Arg Thr Ser Ala Glu Asp Ala Pro Ser Glu Glu Val Ala
500 505 510
Glu Glu Lys Ser Tyr Gln Cys Glu Leu Thr Val Asp Asp Ile Met Pro
515 520 525
Ala Val Lys Thr Val Ile Arg Ser Ile Arg Ile Leu Lys Phe Leu Val
530 535 540
Ala Lys Arg Lys Phe Lys Glu Thr Leu Arg Pro Tyr Asp Val Lys Asp
545 550 555 560

Val Ile Glu Gln Tyr Ser Ala Gly His Leu Asp Met Leu Gly Arg Ile
565 570 575

Lys Ser Leu Gln Thr Arg Val Asp Gln Ile Val Gly Arg Gly Pro Gly
580 585 590

Asp Arg Lys Ala Arg Glu Lys Gly Asp Lys Gly Pro Ser Asp Ala Glu
595 600 605

Val Val Asp Glu Ile Ser Met Met Gly Arg Val Val Lys Val Glu Lys
610 615 620

Gln Val Gln Ser Ile Glu His Lys Leu Asp Leu Leu Leu Gly Phe Tyr
625 630 635 640

Ser Arg Cys Leu Arg Ser Gly Thr Ser Ala Ser Leu Gly Ala Val Gln
645 650 655

Val Pro Leu Phe Asp Pro Asp Ile Thr Ser Asp Tyr His Ser Pro Val
660 665 670

Asp His Glu Asp Ile Ser Val Ser Ala Gln Thr Leu Ser Ile Ser Arg
675 680 685

Ser Val Ser Thr Asn Met Asp
690 695

<210> 7
<211> 854
<212> PRT
<213> Homo sapiens

<400> 7
Met Lys Asp Val Glu Ser Gly Arg Gly Arg Val Leu Leu Asn Ser Ala
1 5 10 15

Ala Ala Arg Gly Asp Gly Leu Leu Leu Leu Gly Thr Arg Ala Ala Thr
20 25 30

Leu Gly Gly Gly Gly Gly Gly Leu Arg Glu Ser Arg Arg Gly Lys Gln
35 40 45

Gly Ala Arg Met Ser Leu Leu Gly Lys Pro Leu Ser Tyr Thr Ser Ser
50 55 60

Gln Ser Cys Arg Arg Asn Val Lys Tyr Arg Arg Val Gln Asn Tyr Leu
65 70 75 80

Tyr Asn Val Leu Glu Arg Pro Arg Gly Trp Ala Phe Ile Tyr His Ala
85 90 95

Phe Val Phe Leu Leu Val Phe Gly Cys Leu Ile Leu Ser Val Phe Ser
100 105 110

Thr Ile Pro Glu His Thr Lys Leu Ala Ser Ser Cys Leu Leu Ile Leu
115 120 125

Glu Phe Val Met Ile Val Val Phe Gly Leu Glu Phe Ile Ile Arg Ile
 130 135 140
 Trp Ser Ala Gly Cys Cys Cys Arg Tyr Arg Gly Trp Gln Gly Arg Leu
 145 150 155 160
 Arg Phe Ala Arg Lys Pro Phe Cys Val Ile Asp Thr Ile Val Leu Ile
 165 170 175
 Ala Ser Ile Ala Val Val Ser Ala Lys Thr Gln Gly Asn Ile Phe Ala
 180 185 190
 Thr Ser Ala Leu Arg Ser Leu Arg Phe Leu Gln Ile Leu Arg Met Val
 195 200 205
 Arg Met Asp Arg Arg Gly Gly Thr Trp Lys Leu Leu Gly Ser Val Val
 210 215 220
 Tyr Ala His Ser Lys Glu Leu Ile Thr Ala Trp Tyr Ile Gly Phe Leu
 225 230 235 240
 Val Leu Ile Phe Ser Ser Phe Leu Val Tyr Leu Val Glu Lys Asp Ala
 245 250 255
 Asn Lys Glu Phe Ser Thr Tyr Ala Asp Ala Leu Trp Trp Gly Thr Ile
 260 265 270
 Thr Leu Thr Thr Ile Gly Tyr Gly Asp Lys Thr Pro Leu Thr Trp Leu
 275 280 285
 Gly Arg Leu Leu Ser Ala Gly Phe Ala Leu Leu Gly Ile Ser Phe Phe
 290 295 300
 Ala Leu Pro Ala Gly Ile Leu Gly Ser Gly Phe Ala Leu Lys Val Gln
 305 310 315 320
 Glu Gln His Arg Gln Lys His Phe Glu Lys Arg Arg Asn Pro Ala Ala
 325 330 335
 Asn Leu Ile Gln Cys Val Trp Arg Ser Tyr Ala Ala Asp Glu Lys Ser
 340 345 350
 Val Ser Ile Ala Thr Trp Lys Pro His Leu Lys Ala Leu His Thr Cys
 355 360 365
 Ser Pro Thr Lys Lys Glu Gln Gly Glu Ala Ser Ser Ser Gln Lys Leu
 370 375 380
 Ser Phe Lys Glu Arg Val Arg Met Ala Ser Pro Arg Gly Gln Ser Ile
 385 390 395 400
 Lys Ser Arg Gln Ala Ser Val Gly Asp Arg Arg Ser Pro Ser Thr Asp
 405 410 415
 Ile Thr Ala Glu Gly Ser Pro Thr Lys Val Gln Lys Ser Trp Ser Phe
 420 425 430

Asn Asp Arg Thr Arg Phe Arg Pro Ser Leu Arg Leu Lys Ser Ser Gln
 435 440 445
 Pro Lys Pro Val Ile Asp Ala Asp Thr Ala Leu Gly Thr Asp Asp Val
 450 455 460
 Tyr Asp Glu Lys Gly Cys Gln Cys Asp Val Ser Val Glu Asp Leu Thr
 465 470 475 480
 Pro Pro Leu Lys Thr Val Ile Arg Ala Ile Arg Ile Met Lys Phe His
 485 490 495
 Val Ala Lys Arg Lys Phe Lys Glu Thr Leu Arg Pro Tyr Asp Val Lys
 500 505 510
 Asp Val Ile Glu Gln Tyr Ser Ala Gly His Leu Asp Met Leu Cys Arg
 515 520 525
 Ile Lys Ser Leu Gln Thr Arg Val Asp Gln Ile Leu Gly Lys Gly Gln
 530 535 540
 Ile Thr Ser Asp Lys Lys Ser Arg Glu Lys Ile Thr Ala Glu His Glu
 545 550 555 560
 Thr Thr Asp Asp Leu Ser Met Leu Gly Arg Val Val Lys Val Glu Lys
 565 570 575
 Gln Val Gln Ser Ile Glu Ser Lys Leu Asp Cys Leu Leu Asp Ile Tyr
 580 585 590
 Gln Gln Val Leu Arg Lys Gly Ser Ala Ser Ala Leu Ala Leu Ala Ser
 595 600 605
 Phe Gln Ile Pro Pro Phe Glu Cys Glu Gln Thr Ser Asp Tyr Gln Ser
 610 615 620
 Pro Val Asp Ser Lys Asp Leu Ser Gly Ser Ala Gln Asn Ser Gly Cys
 625 630 635 640
 Leu Ser Arg Ser Thr Ser Ala Asn Ile Ser Arg Gly Leu Gln Phe Ile
 645 650 655
 Leu Thr Pro Asn Glu Phe Ser Ala Gln Thr Phe Tyr Ala Leu Ser Pro
 660 665 670
 Thr Met His Ser Gln Ala Thr Gln Val Pro Ile Ser Gln Ser Asp Gly
 675 680 685
 Ser Ala Val Ala Ala Thr Asn Thr Ile Ala Asn Gln Ile Asn Thr Ala
 690 695 700
 Pro Lys Pro Ala Ala Pro Thr Thr Leu Gln Ile Pro Pro Pro Leu Pro
 705 710 715 720
 Ala Ile Lys His Leu Pro Arg Pro Glu Thr Leu His Pro Asn Pro Ala
 725 730 735

Gly Leu Gln Glu Ser Ile Ser Asp Val Thr Thr Cys Leu Val Ala Ser
740 745 750

Lys Glu Asn Val Gln Val Ala Gln Ser Asn Leu Thr Lys Asp Arg Ser
755 760 765

Met Arg Lys Ser Phe Asp Met Gly Gly Glu Thr Leu Leu Ser Val Cys
770 775 780

Pro Met Val Pro Lys Asp Leu Gly Lys Ser Leu Ser Val Gln Asn Leu
785 790 795 800

Ile Arg Ser Thr Glu Glu Leu Asn Ile Gln Leu Ser Gly Ser Glu Ser
805 810 815

Ser Gly Ser Arg Gly Ser Gln Asp Phe Tyr Pro Lys Trp Arg Glu Ser
820 825 830

Lys Leu Phe Ile Thr Asp Glu Glu Val Gly Pro Glu Glu Thr Glu Thr
835 840 845

Asp Thr Phe Ala Arg Ile
850

<210> 8
<211> 29
<212> PRT
<213> Homo sapiens

<400> 8
Lys Lys Glu Gln Gly Glu Ala Ser Ser Asn Lys Phe Cys Ser Asn Lys
1 5 10 15

Gln Lys Leu Phe Arg Met Tyr Thr Ser Arg Lys Gln Ser
20 25

<210> 9
<211> 9
<212> PRT
<213> Homo sapiens

<400> 9
Lys Lys Glu Gln Gly Glu Ala Ser Ser
1 5

<210> 10
<211> 20
<212> PRT
<213> Homo sapiens

<400> 10
Asn Lys Phe Cys Ser Asn Lys Gln Lys Leu Phe Arg Met Tyr Thr Ser
1 5 10 15

Arg Lys Gln Ser
20

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